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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,372	12/12/2005	Karlheinz Rumpler	SMB-PT162 (PC 04 224 B US	9151
3624	7590	10/20/2009	EXAMINER	
VOLPE AND KOENIG, P.C. UNITED PLAZA, SUITE 1600 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103			VETERE, ROBERT A	
			ART UNIT	PAPER NUMBER
			1792	
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			10/20/2009	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/560,372	<b>Applicant(s)</b> RUMPLER ET AL.	
	<b>Examiner</b> ROBERT VETERE	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 3-29 and 33-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-29 and 33-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/09</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Examiner's Comments*

An amendment, amending claims 4-5, 11-17, 23 and 33-35, cancelling claims 1-2 and 30-32 and adding new claims 36-37, was received and entered into the record on 6/23/2009.

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 3-29 and 33-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 37, in section e, states "...by the processing gas are and returning..." The examiner is treating this clause as stating "...by the processing gas are separated and returning..." based on a similar clause in the previously submitted claims.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 34-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Barendse et al. (WO 01/83727).

**Claim 34:** Barendse teaches a method of producing enzyme granules comprising the steps of: injecting one or more liquid enzyme preparations via spray nozzles into a fluidized bed (claimed solids-laden stream), subjecting the stream to a granulation process, separating the particles from the gas stream, returning the particles to the fluidized bed via the gas stream as seed material and discharging the particles via sifters (p. 3:20-29). Barendse further teaches that the particles are guided via inclined plates towards the gravity sifter near the nozzle (claimed entry gap) (4:30-34) and that the fluidized bed is

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heated (see, e.g., 4:18-21). Barendse also teaches that the returning particles are entrained in the processing gas and returned to the fluidized bed (4:22-25).

**Claim 35:** Barendse teaches that the enzyme granules are useful in food or feed and that the enzymes are used as additives (claimed admixing) in these applications (2:30-3:4).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3, 5-6, 8-9, 11-14, 15-26, 28-29 and 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barendse et al. (WO 01/83727) in light of Nagahama et al. (US 4,354,450) and further in light of Birkhead (US 3,777,874) and Andela et al. (US 2006/0105024).

**Claims 3, 16, 33 and 36:** Barendse teaches a method of producing enzyme granules comprising the steps of: injecting one or more liquid enzyme preparations via spray nozzles into a fluidized bed (claimed solids-laden stream), subjecting the stream to a granulation process, separating the particles from the gas stream, returning the particles to the fluidized bed via the gas stream as seed material and discharging the particles via sifters (p. 3:20-29). Barendse further teaches that the particles are guided via inclined plates towards the gravity sifter near the nozzle (claimed entry gap) (4:30-34) and that the fluidized bed is heated (see, e.g., 4:18-21). Barendse also teaches that the returning particles are entrained in the processing gas and returned to the fluidized bed (4:22-25).

Barendse fails to expressly teach is that the gas stream has a circular flow arranged in an axial direction of the reaction chamber. Nagahama teaches a method of forming a granulation bed wherein the gas stream, which enters through an orifice which is rotationally symmetrical or elongated, has a circular flow arranged in an axial direction of the reaction chamber (Fig. 6). The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Thus, it would have been

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obvious to one of ordinary skill in the art at the time the invention was made to have used a circular flow in the method of Barendse with the predictable expectation of success because such a configuration is well known in the art of granulation.

Barendse and Nagahama fail to teach that the processing stream hits a deflection piece as it enters the apparatus. Birckhead teaches a method of injecting a stream into a fluidized bed wherein the stream is ejected from a nozzle and contacts a deflector which redirects the stream in a direction which is perpendicular to the axis of the spray nozzle (6:33-64). The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a deflector in the combined method of Barendse and Nagahama to redirect the stream to the fluidized bed with the predictable expectation of success.

Barendse also fails to teach that inert materials are added to the process. Andela teaches that in the method of forming enzyme granules, introduction of inert materials as aqueous solutions can improve pellet stability (§ 0042). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have introduced inert materials in the method of Barendse in order to improve granule stability with the predictable expectation of success. With respect to the limitation that the inert material is introduced via spray nozzles, Andela teaches that the inert material is introduced during spray drying (§ 0042). While Andela does not expressly teach that the inert material is introduced via spray nozzles, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the spray nozzles as an economic means of introducing inert material because the processing chamber was already equipped with spray nozzles. Furthermore, it is well known in the art of spray nozzles, that such nozzles are capable of atomizing.

**Claims 5-6 and 8-9:** Barendse also teaches that the fine particles which are removed from the bed are returned to the processing chamber (4:22-25) and that these returned particles are heated (4:18-21).

**Claim 11:** Barendse also teaches that the enzymes are made from various additives (3:20-29).

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**Claim 12:** Barendse also teaches that the particles are spray dried prior to granulation (1:11-14).

**Claim 13:** Barendse teaches that the enzyme granules formed in the fluidized bed are returned to the process (see above) and therefore, Barendse teaches that 1% by weight or more of a powdery granulation product is added to the granulation process.

**Claim 14:** Barendse teaches that the finished particles may be coated, but does not teach the type of coating. Andela teaches a method of coating feed-enzymes with a hydrophobic coating (Abst.). The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Thus, because both Barendse and Andela teach method of producing enzyme granules for feed, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included the hydrophobic coating of Andela in the method of Barendse with the predictable expectation of success.

**Claim 15:** Barendse does not expressly teach the particles residence time. However, Barendse teaches that the drying rate can be adjusted (6:23-32, 9:17-10:3). "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 105 USPQ 233, 235 (CCPA 1955). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected a drying time of less than 1.5 hours by adjusting the drying rate of the process.

**Claims 17 and 34:** Barendse teaches that the particles have a roundness of 1.2, and average grain size of 140  $\mu\text{m}$  (Table 1). With respect to the limitation that the grain size varies based on the content of the active enzyme, Barendse teaches that the grain size varies based on the components used (see Tables 1-4). "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 105 USPQ 233, 235 (CCPA 1955). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used particle sized in accordance with those claimed because Barendse teaches that the grain size varies based on the compositions used with the predictable expectation of success.

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**Claim 18:** Barendse teaches that the active enzyme content can be adjusted (5:14-26).

"[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 105 USPQ 233, 235 (CCPA 1955).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected a ratio of less than 7:1.

**Claim 19:** Barendse teaches that the enzyme granules have a diameter of 100-750  $\mu\text{m}$  (5:1-13).

With respect to the dust content, Barendse teaches that one of the purposes of this invention is to substantially reduce the dust content (1:17-19). While Barendse does not reference the Heubach test, based on the fact that Barendse is directed at reducing dust content, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided a granule with a dust content of less than 800 on the Heubach test.

**Claim 20:** Barendse teaches the same method as that claimed by applicant and teaches granules with the same characteristics as those claimed by the applicant. Therefore, it is inherent that the granules of Barendse have a pressure resistance of more than 10 MPa.

**Claims 21-22:** Barendse teaches that the grain size distribution is 0.5, the bulk density is 670 g/L (Table 1).

**Claim 23:** Barendse teaches that the phytase activity can be adjusted based on the materials used (Tables 1-4). "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 105 USPQ 233, 235 (CCPA 1955). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have produced granules with a phytase activity of at least 15,000 FTU.mg.

**Claims 24-26, 28-29 and 35:** Barendse teaches that the enzyme granules are useful in food or feed and that the enzymes are used as additives (claimed admixing) in these applications (2:30-3:4).

7. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barendse, Nagahama, Birkhead and Andela in light of Hartman et al. (US 5,575,086).

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**Claim 37:** While Barendse and Andela fail to teach a nozzle with three or four heads, it is well known in the art of nozzles that nozzles may have a plurality of heads (four, e.g.) (see, e.g., Hartman at Abst.) and that using nozzles with a plurality of heads allows for fewer nozzle assemblies, thereby saving space (4:31-39). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a three- or four-way nozzle as the means of injecting the solution with the predictable expectation of success.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barendse, Nagahama, Birkhead and Andela in light of Karlsson (US 4,233,007).

**Claim 4:** Barendse fails to teach that the granules are removed by a volumetric removal unit. Karlsson teaches a fluidized bed wherein the finished particles are removed by a rotary valve (5:45-47). The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a rotary valve in the method of Barendse with the predictable expectation of success.

9. Claims 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barendse, Nagahama, Birkhead and Andela in light of Miller (US 4,100,263).

**Claims 7 and 10:** Barendse teaches that the particles are returned to the processing chamber, but fails to teach that the particles which are too large are milled before they are returned. Miller teaches a method of operating a fluidized bed wherein particles which are too large are milled before being returned to the system (6:3-8). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have milled the large particles before returning them to the system with the predictable expectation of success in order to have fully recycled particles in the system.

10. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barendse, Nagahama, Birkhead and Andela in light of Green et al. (US 4,009,076).

**Claim 27:** Barendse fails to teach that the enzymes are used as detergents. Green teaches that it is well known in the art to use enzyme granules in detergents (Abst.). Thus, it would have been obvious



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to one of ordinary skill in the art at the time the invention was made to have used the enzyme granules of Barendse in detergents with the predictable expectation of success.

### ***Response to Arguments***

11. Applicant's arguments filed 6/23/2009 have been fully considered but they are not persuasive.

Applicant first argues that Barendse fails to teach a solid-laden gas. This is not persuasive. Barendse teaches a fluidized bed which meets this limitation because the particles are suspended by a gas stream.

Applicant next argues that the Barendse method would lead to the slow formation of granules and, therefore, a long dwell time. This is not persuasive. Barendse teaches that the drying rate can be adjusted (6:23-32, 9:17-10:3). "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 105 USPQ 233, 235 (CCPA 1955). Furthermore, applicant has not claimed any particular granulation rate.

Applicant further argues that Nagahama does not teach applicant's claimed method by citing various advantages of applicant's claimed method over Nagahama (nozzle placement, number of steps to add inert materials, e.g.). This is not persuasive. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Furthermore, many of the advantages that applicant recites do not appear in any of applicant's claims.

Applicant also argues that Karlsson's method is directed to a method involving a molten metal and, therefore, is not analogous. This is not persuasive. The Karlsson method teaches a method of removing particles from a fluidized bed and, therefore, is analogous to the Barendse method. "The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference.... Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art." *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981).

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Applicant next argues that Green does not mention anything about the content of the activated enzymes or the roundness. This is not persuasive. Green teaches that it is well known in the art to use enzyme granules in detergents (Abst.). The fact that Green fails to disclose a particular content or roundness of the enzyme granules would not prevent one of ordinary skill in the art from recognizing that enzyme granules, such as those produced by the method of Barendse, are used in detergents. "The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference.... Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art." *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981).

Applicant also argues that the Andala method differs from applicant's process because it is a two step process. This is not persuasive. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

### ***Conclusion***

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT VETERE whose telephone number is (571)270-1864. The examiner can normally be reached on Mon-Fri 9-6.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert Vetere/  
Examiner, Art Unit 1792

/Michael Cleveland/

Supervisory Patent Examiner, Art Unit 1792